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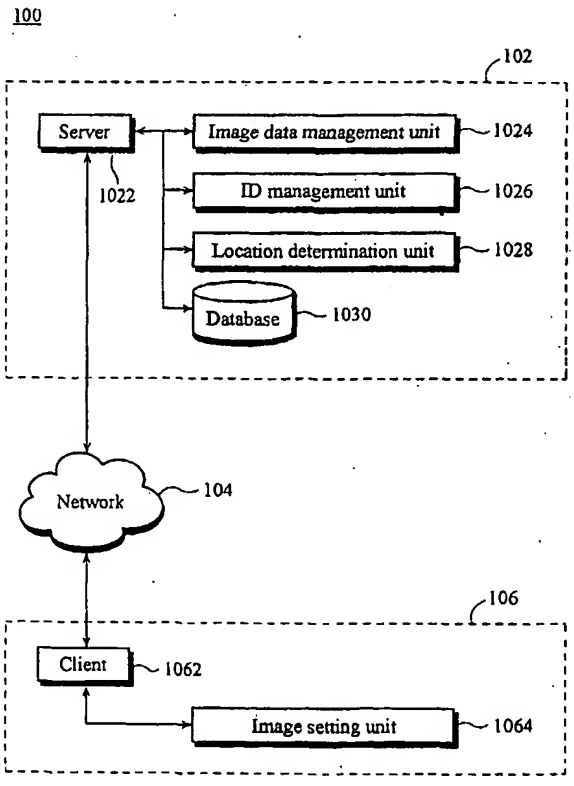
(54) Title: METHOD AND SYSTEM FOR CHANGING A SCREEN IMAGE IN THE THREE-DIMENSIONAL VIRTUAL SPACE



(57) Abstract: A method and a system change a screen image including a background image and an avatar acting in a three-dimensional virtual space. The method comprises the steps of authenticating a user's ID (Identification) and determining a physical location of the user; transmitting a predefined screen image; and providing a new screen image corresponding to a condition requested from the user. The system comprises a server and a client systems, wherein the server system consists of a server, an ID management unit, a position determination unit, an image storage unit, and an image management unit; and the client system includes a client and an image setting unit.

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METHOD AND SYSTEM FOR CHANGING A SCREEN IMAGE IN THE THREE-DIMENSIONAL VIRTUAL SPACE

TECHNICAL FIELD

The present invention relates to a method and system for changing an image representing a three-dimensional virtual space; and, more particularly, to a method and system for changing a screen image containing an avatar acting in a three-dimensional virtual space and a background image thereof.

BACKGROUND ART

Recently, as increasing the concern of a computer user over a three-dimensional (3D) virtual space, there is the advent of computer games based on the 3D virtual space or web sites providing a 3D virtual world. For these computer games and web sites, however, a screen image of a 3D virtual space displayed on a computer monitor of the user would have a shape independent of a time instead of being changed its shape depending on a time, e.g., seasons and/or weathers appearing in the real world where the user lives.

Owing to the screen image with the shape independent of a time, there is the difference what the user feels between the 3D virtual space and the real world. Accordingly, it is difficult for the user to easily feel the interest or enjoyment to the computer games or the 3D virtual space. It is also difficult to make the user felt new feelings for the computer games or the 3D virtual space because the user feels familiar therewith in a short time.

DISCLOSURE OF THE INVENTION

It is, therefore, the objective of the present invention to provide a method and system for changing a screen image containing an avatar acting in a 3D virtual

space. The screen image includes a 3D image that is displayed on a computer monitor of a user and contains a background image of the 3D virtual space as well as the avatar.

The change of the screen image according to the present invention includes the changes of weathers such as fine, cloudy, rainy, and snowy weather and seasons of spring, summer, fall, and winter, as well as the changes depending on the individual preference of the user. These changes of the screen image may be displayed on the monitor reflecting various elements such as the geographic setting where the user lives and the habitude, preference, and feelings of the user.

In accordance with the present invention, it is provided a method for changing a screen image representing a three-dimensional virtual space on a server-client system, the method comprising the steps of: identifying an identification (ID) of a user and determining a physical location of the user; and providing the client with a predefined screen image of the three-dimensional virtual space corresponding to the physical location of the user, wherein the predefined screen image is changed depending on a time.

Also, in accordance with the present invention, it is provided a system for changing a screen image on a three-dimensional virtual space, the system comprising: a server and client system, wherein the client system includes an environment setting unit for transmitting a user's request generated through an environment setting tool-bar, and wherein the server system includes: an identification (ID) management unit for authenticating the ID of a user; a location determination unit for determining a physical location of the user; an image data management unit for managing screen image data corresponding to the physical location of the user; and a storage unit for storing the screen image data, wherein

the image data management unit receives the user's ID from the ID management unit and the user's physical location data from the location determination unit, and provides screen image data corresponding to a request of the user.

BRIEF DESCRIPTION OF THE DRAWINGS

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood with reference to the following description, taken in conjunction with the accompanying drawings in which:

Fig. 1 shows a schematic block diagram of a server-client system for changing a screen image in accordance with the present invention;

Fig. 2 provides a flow chart for explaining a method for changing the screen image by using the client-server system shown in Fig. 1 in accordance with the present invention;

Fig. 3 exemplifies an example of a screen image setting picture displayed on the client when a screen image setting tool-bar is selected; and

Fig. 4 presents an example of a client browser employed in the present invention.

MODES OF CARRYING OUT THE INVENTION

Now, a preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings.

Fig. 1 shows a schematic block diagram of a server-client system for changing a screen image displayed on the client in accordance with the present invention. As shown in Fig. 1, the server-client system 100 comprises a

server system 102 and a client system 106 connected to each other via a network 104. The server system 102 includes a server 1022, an image data management unit 1024, an ID (Identification) management unit 1026, a location determination unit 1028, and a database (DB) 1030. The client system 106 includes a client 1062 and an image setting unit 1064.

The image data management unit 1024 of the server system 102 serves to store a screen image on the DB 1030 and to manage the same. The screen image represents a 3D virtual space displayed on the client 1062. The screen image contains the background of the 3D virtual space as well as an avatar acting in the 3D virtual space on behalf of the user. The screen image is written in VRML (Virtual Reality Modeling Language) to realize a 3D virtual space provided from the server system 102 to the client system 106, and stored on the DB 1030.

The ID management unit 1026 serves to determine whether the ID of a user who connects to the server system 102 is authentic based on user ID data stored on the DB 1030, when the user connects through the client system 106 to the server system 102 by executing a web client program installed on the client 1062.

The location determination unit 1028 determines the physical location of the user based on the user's IP (Internet Protocol) address acquired when the user connects to the server system 102, and transmits location information to the image data management unit 1024. In response, the image data management unit 1024 retrieves from the DB 1030 a predetermined image, e.g., a screen image, reflecting the user's physical location, and transmits it to the client 1062 through the server 1022. The predetermined screen image includes an avatar acting in the 3D virtual space and the background thereof that the user feels familiar with.

A screen image may be created in various ways.

Specifically, the screen image may be prepared based on data about past and/or present weather. The screen image is stored on a predefined location of the DB 1030. It is possible to set up a condition for gradually changing the data of the screen image in time.

The avatar is acting in the 3D virtual space, as controlled by the user so that the client 1062 should receive data of a new block when the avatar moves to the new block in the 3D virtual space. In case that the avatar passes a boundary between the blocks, updated screen data corresponding to the new location of the avatar is transmitted to the client 1062.

In case that the user directly selects a screen image according to he/she likes, this selection is processed as an interrupt requested from the client 1062.

Now, a method will be described for changing the screen image in accordance with the present invention, with reference to Fig. 2. Fig. 2 provides a flow chart for explaining the method for changing the screen image by using the client-server system shown in Fig. 1.

At step S202, the ID management unit 1026 authenticates the ID of a user who connects to the server 1022, based on the ID data stored on the DB 1030. The user executes a web client program installed on the client 1062 so that a browser connects to the server 1022. Thereafter, the location determination unit 1028 determines the user's actual or physical location by analyzing the user's ID and IP address.

At step S204, the image data management unit 1024 retrieves a predetermined screen image representing a 3D virtual space from the DB 1030 based on the location determined at step S202 and transmits the same to the client 1062 via the server 1022.

At step S206, in order to change his/her screen image displayed on the client 1062, the user selects a screen image setting tool-bar provided on the web browser

as shown in Fig. 4 through the image setting unit 1064 to set a desired screen image. When the user selects the screen image setting tool-bar, a screen image setting picture is displayed as shown in Fig. 3. It should be noted that the screen image setting picture of Fig. 3 is merely an example of the present invention, and thus it may have a different shape for representing the screen image.

The user may have various individual preferences and want various experiences on the 3D virtual space simulating the four seasons. For example, Russians will surf a summer-like 3D virtual space feeing good since they prefer to summer weather.

At step S208, the server 1022 receives a request for setting the screen image from the client 1062 to transmit it to the image data management unit 1024. In response to the request, the image data management unit 1024 retrieves screen image data corresponding to the request from the DB 1030.

At step S210, the client 1062 receives the retrieved screen image data to display it on a monitor (not shown).

As described above, in accordance with the present invention, the user can change the screen image including the avatar on the 3D virtual space.

While a particular embodiment of the present invention has been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from this invention in its broader aspects and, therefore, the aim in the appended claims is to cover all such changes and modifications, as fall within the true spirit and scope of this invention.

INDUSTIRAL APPLICABILITY

In accordance with the present invention, the

screen image representing the 3D virtual space may be changed according to the request from the user. Therefore, the user may enjoy the Internet surfing and chatting with the more sense for the real and the more pleasure on the 3D virtual space as doing on the real world.

What is claimed is:

1. A method for changing a screen image representing a three-dimensional virtual space on a server-client system, the method comprising the steps of:

authenticating an identification (ID) of a user and determining a physical location of the user; and

providing the client with a predefined screen image of the three-dimensional virtual space corresponding to the physical location of the user,

wherein the predefined screen image is changed depending on a time.

2. The method of Claim 1, wherein the server-client system includes a database which stores the user ID and the predefined screen image.

3. The method of Claim 1, further comprising the steps of:

providing a condition for changing the predefined screen image to the server; and

transmitting the client with a new screen image corresponding to the condition,

wherein the new screen image is changed in time based on the condition.

4. A server-client system for changing a screen image on a three-dimensional virtual space, the system comprising:

a server system; and

a client system,

wherein the client system includes an environment setting unit for transmitting a user's request generated through an environment setting tool-bar,

the server system includes:

an identification (ID) management unit for

authenticating the ID of a user;

a location determination unit for determining a physical location of the user;

an image data management unit for managing screen image data corresponding to the physical location of the user; and

a storage unit for storing the screen image data,

the image data management unit receives the user's ID from the ID management unit and the user's physical location data from the location determination unit, and provides screen image data corresponding to a request of the user.

Fig. 1

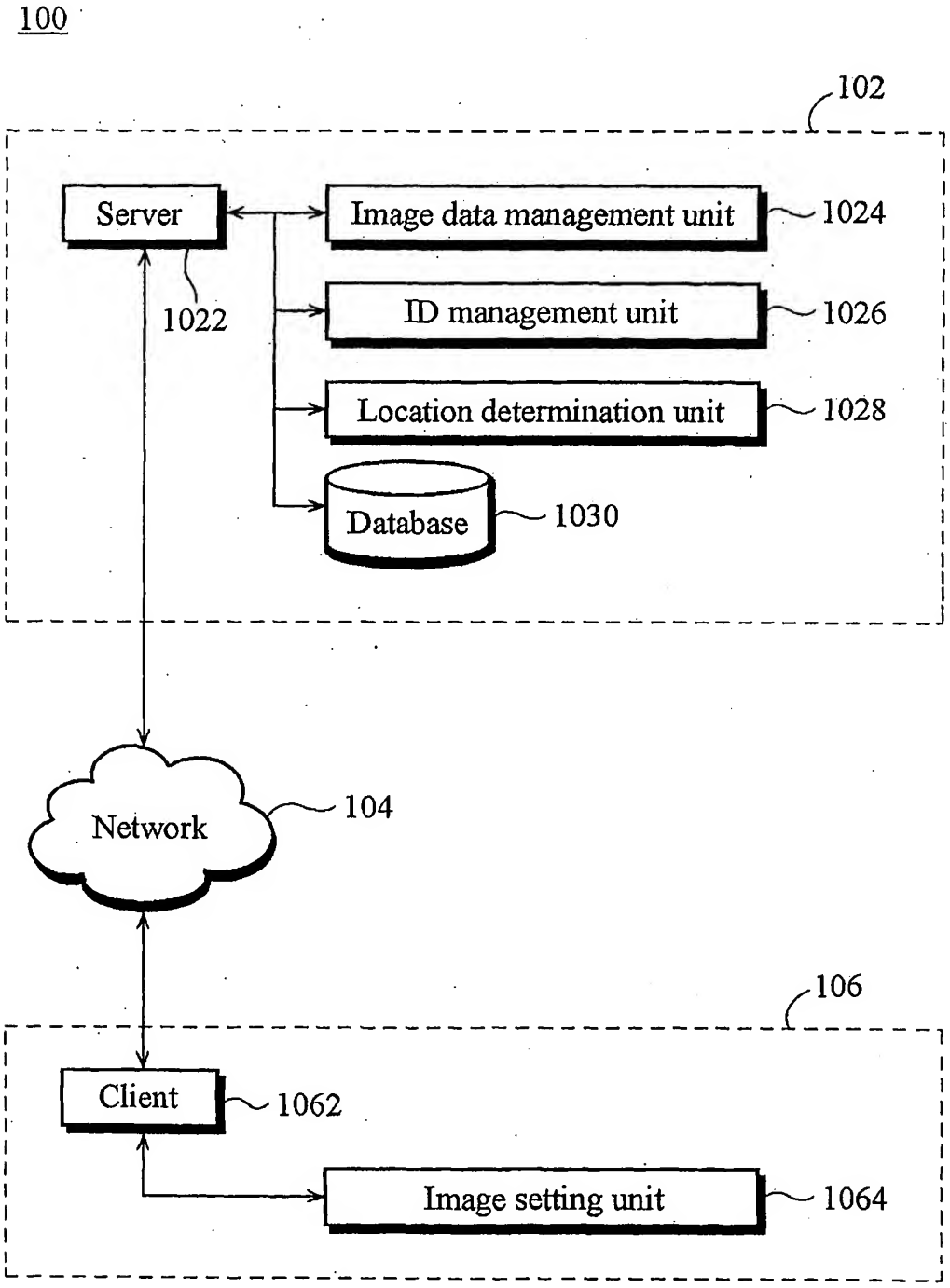
100
102
Server
1022
Image data management unit
1024
ID management unit
1026
Location determination unit
1028
Database
1030
Network
104
106
Client
1062
Image setting unit
1064

Fig. 2

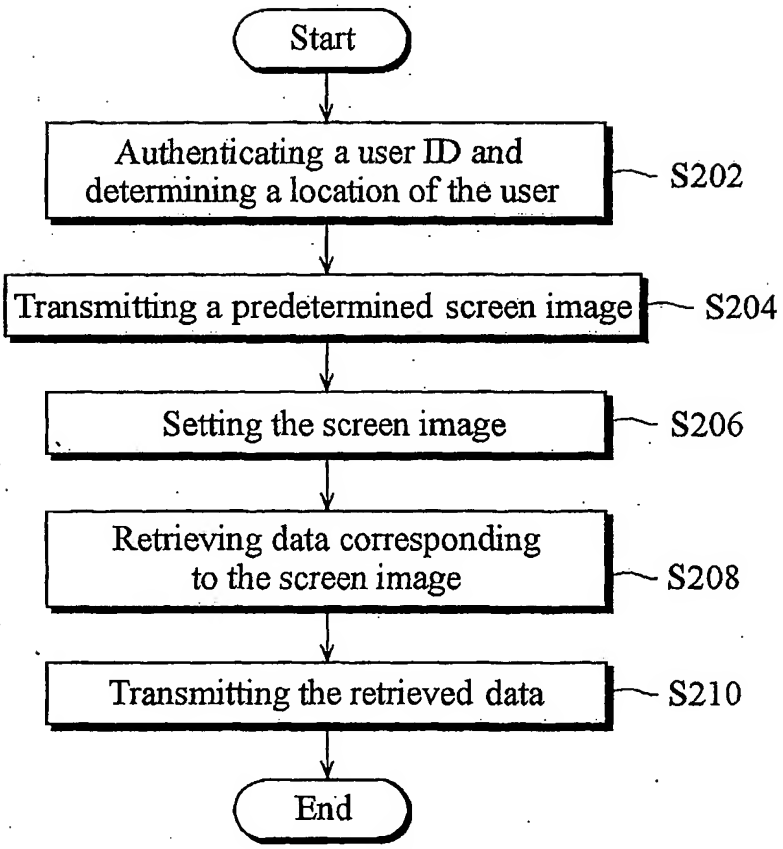
Start
Authenticating a user ID and determining a location of the user
S202
Transmitting a predetermined screen image
S204
Setting the screen image
S206
Retrieving data corresponding to the screen image
S208
Transmitting the retrieved data
S210
End

Fig. 3

What is your favorite season and weather?	
Seasons	Weathers
Spring	Fine
Summer	Cloudy
Fall	Rainy
Winter	Snowy
	Foggy
	Stormy

Fig. 4

Image Setting tool-bar

INTERNATIONAL SEARCH REPORT

national application No.
PCT/KR01/00717

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G06F 19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimun documentation searched (classification system followed by classification symbols)

IPC7 G06F 17/00, 15/16

Documentation searched other than minimun documentation to the extent that such documents are included in the fileds searched

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search trerms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 11-275528 A (SONY CO.,) 8. OCTOBER. 1999 FIG 1, 2, 3, 4, 5, 6, 9-13, 15-18 ABSTRACT, CLAIMS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	1-4
A	EP 0910009 A2 (CANON CO.,) 21. APRIL. 1999 FIG 1, 2, 3, 4, 5, 6, 7-10 ABSTRACT, CLAIMS 1, 2, 3, 4, 5, 6, 7, 8	1-4
A	KR 199972063 A (TELCODIEA TECHNOLOGIES CO.,) 27. SEPTEMBER. 1999 FIG 1, 2, 3, 4, 5, 7-10, 15, ABSTRACT, CLAIMS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	1-4
A	KR 1997002693 A (IBM CO.,) 28. JANUARY. 1997 FIG 1, 2, 3, 4 ABSTRACT, CLAIMS 1, 2, 3, 4, 5, 6, 7, 13-18, 31-62	1-4

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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"Y" document of particular relevence; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search	Date of mailing of the international search report
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